

**CLAIMS**

**What Is Claimed Is:**

1. A method performed by an implantable cardiac stimulation  
5 device for analyzing a cardiac signal to generate information  
representative of the characteristics of R-waves and T-waves found  
therein, the method comprising:
- sensing a cardiac signal;
  - 10 identifying pairs of consecutive R-waves and T-waves within  
the cardiac signal;
  - measuring values representative of characteristics of pairs  
of R-waves and T-waves;
  - generating statistical information representative of the  
15 measured values, the statistical information including an average  
of each measured value; and
  - storing the statistical information generated for the  
measured values.
2. The method of claim 1 further comprising:
- 20 sensing additional cardiac signals;
  - identifying R-waves in the additional cardiac signals and  
then applying the stored averaged values to identify expected  
locations and durations of T-waves within the additional cardiac  
signals; and
  - 25 blanking portions of an atrial channel of the additional  
cardiac signals to ignore signals occurring within a period of time  
corresponding to the expected locations and durations of T-waves.

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3. The method of claim 2 further comprising:

identifying an additional pair of consecutive R-waves and  
T-waves within the additional cardiac signals;

5 measuring values representative of characteristics of the  
additional pair of R-waves and T-waves;

determining an amount of variation between the measured  
values of the additional pair of R-waves and T-waves and the  
average of the measured values of previously identified pairs; and

10 determining whether the amount of variation exceeds a  
predetermined threshold of variation and, if not, updating the  
statistics to reflect the measured values of the additional pair of  
R-waves and T-waves.

4. The method of claim 3 wherein the amount of variation  
15 includes one or more of variation in an amplitude of the T-waves,  
variation in an amplitude of the R-waves, variation in a time delay  
between R-waves and corresponding T-waves, variation in a duration of  
individual R-waves, and variation in a duration of individual T-waves.

20 5. A system for locating T-waves within a cardiac signal using  
an implantable cardiac stimulation device, the system comprising:

means for sensing a cardiac signal;

25 means for determining an average time delay between  
consecutive R-waves and T-waves within a first portion of the  
cardiac signal;

means for determining average durations of the T-waves  
within the first portion of the cardiac signal; and

30 means for identifying R-waves in a second portion of the  
cardiac signal and then applying the average time delay and  
average T-wave duration to identify expected locations and

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durations of subsequent T-waves within the second portion of the cardiac signal.

6. The system of claim 5 further comprising:

5 means for blanking portions of an atrial channel of the second portion of the cardiac signal to ignore signals occurring within a period of time corresponding to the expected locations and durations of the T-waves.

10 7. A system for locating T-waves within a cardiac signal using an implantable cardiac stimulation device, the system comprising:  
a sensor operative to sense a cardiac signal;  
a controller operative to determine an average time delay  
15 between consecutive R-waves and T-waves within a first portion of the cardiac signal, to locate individual R-waves in a second portion of the cardiac signal, and then, for each R-wave found in the second portion of the cardiac signal, to identify an expected location of a subsequent T-wave using the average time delay.

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